1: Karsten--41 (1916-18) 1935 Jivaro
164 (1928-29)

"On the lower Bobonaza the climate begins to become unhealthy, which an experienced traveller will understand from the very presence of numerous morete palms (Mauritia) and swamps. If he wants to escape malarial fever he has above all to guard himself at night against attacks of the fever-bringing Anopheles mosquito by a safe mosquito net. Shortly before we arrived at Pastaza we had passed an Indian village, called by the mestizos Santa Rosa, which had been abandoned some time ago on account of an epidemic of malarial fever. My Indians repeatedly pointed out to me that we had hardly any chance ourselves of escaping being 'caught by the disease', as they express the matter. Far more terrible than the malaria, I was told, is another mysterious disease which was said to rage epidemically in the region of Andoas and to which--according to a rumour current at Canelos--some men of the garrison had already fallen victims. Unfortunately for me, these rumours very soon proved to be true."

1: Karsten--42-43 (1916-18) 1935 Jivaro
164 (1928-29)

"We were received by the surviving members of the garrison, three young men, who told us about the sad events of the recent weeks. The disease commonly called escorbuto, (scurvy) by the mestizos, is characterized essentially by high fever, dizziness, and an almost irresistible sleepiness. The mestizos and Indians have their own theory about the origin of this disease. It is caused, they say, by the anus of the patient [43] being affected by worms which rapidly spread along the rectum into the whole intestinal system, consuming it, so that the patient literally rots away in a few days. Bad food and excessive humidity are mentioned as the chief causes of this disease. I have been told that the same disease exists in Matto Grosso in Brazil, where it is called corrupção. The Indians of the Bobonaza assert that it can be cured if certain measures are instantly taken. Their remedy consists of a sort of clyster prepared of powder, Indian pepper, and certain other antiseptic herbs which are alleged to kill the worms before they have spread in the intestines. At the time when I first travelled on the Pastaza, there prevailed much obscurity as to the real nature of the disease and the physicians of Ecuador only knew it by name."

1: Karsten--71-72 (1916-18) 1935 Jivaro
164, 609 (1928-29)

"The whole of Eastern Ecuador at that time [JKM: 1928-29] seemed to be suffering from an epidemic of measles, a malady which among the natives is by no means the innocent disease of children it generally is in Europe. I had found it raging among the Jibaros of the Upano also, and since the Indians rightly conclude that such epidemics come from the whites, it had been extremely difficult for me to get in touch with the Jibaros of that region. A white man entering an Indian house was at first looked upon almost as an enemy. During my stay on the Upano, however, I never thought of the region of Canelos too being visited by measles, as I now found to be the case. When I arrived there I was told that the [72] village was practically empty, the Indians shunning it for fear of the epidemic and living now scattered here and there in their tambos along the river. There was little hope of persuading some of the fugitives to return to the village and enter my service."

1: Karsten--217 (1916-18) 1935 Jivaro
116, 837, 164, 177 (1928-29)

"Unnatural vices are rare or wholly unknown both among the savage Jibaros and the Canelos Indians. Thus I have never heard either of homosexual customs or sodomy. As to venereal diseases, they are, as far as I know, as yet unknown to the majority of the Jibaro tribes. Among the half-civilized Canelos Indians, who have been more in contact with the whites, they seem to be more prevalent, but even among them they are at present rare."

1; Karsten--395
116, 164, 177, 753

(1916-18) 1935
(1928-29)

Jivaro-1

"On the other hand, in the category 'disease' (súngura) most illnesses are reckoned which are not particularly connected with pains and which the Indians have learnt to know through the whites; first of all fever and infectious diseases such as small-pox, scarlet-fever, dysentery, and venereal disease. Whereas the Indian medicine-men are often able to cure witchcraft sent by other medicine-men, they are completely powerless against 'disease' imported by the whites. Thus when an epidemic of small-pox--a disease that has at times made terrible ravages among the natives of South America--breaks out in an Indian village, the inhabitants generally see no other way to rid themselves of the evil than to burn and abandon the whole village, or at least to leave it for some time. Under such circumstances it is easy to understand the anxiety with which the Indians always, when a strange white man arrives, ask whether he 'brings disease' with him (súngura itáches?). A traveller who falls seriously ill while staying in an Indian house incurs great danger. If the Indians feel sufficiently strong they may kill him; if not, they will at least go off and leave him alone in the house. The first visit of white men among Indians living in unexplored parts of the country is, for the same reason, particularly critical: the Indians think that the strange new-comers infect their houses and villages by their mere presence. By their personal contact as well as by their clothes, their medicines, and the many other mysterious things that they bring with them they are believed to spread germs of death-bringing diseases.

Just as the evil of witchcraft is caused by a demoniacal being, perhaps a death-bringing iguánchi, so 'disease' (súngura) is also caused by a spirit, namely, the spirit of a white man. The Jibaros, however, can say nothing more particularly about this disease and death spirit, and they know no other way of protecting themselves against his visits than by trying to avoid him."

1: Karsten--396 (1916-18) 1935 Jivaro
116, 164, 753 (1928-29)

"Although the category 'disease' nowadays chiefly comprises illnesses that have been introduced by the whites, there is also a kind of súngura which is endemic among the Indians and which they have thus known before the white man arrived. This kind of súngura arises directly from their own evil iguánchi. Such a case of 'disease' came under my notice among the Indians of Arapicos, where several young persons and children had been attacked by an insidious fever, apparently epidemical, which made them slowly pine away. The demons always outdo living men, even the most experienced sorcerers, as senders of supernatural evils. The medicine-men, therefore, generally profess their inability to cure the kind of sungura which is sent by the iguanchi."

l: Karsten--396-397 (1916-18) 1935 Jivaro-1
116, 164, 753 (1928-29)

"THE CANELOS INDIANS make exactly the same distinction between what they call chunta (magic arrow) or nanai ('pain', 'evil', caused by the chunta) and ungüi, 'disease', originally introduced by the whites. As to the latter the Canelos Indians, who have at times suffered terribly from small-pox and other epidemic diseases, have much more realistic ideas than the wild Jibaros. 'Disease', they say, enters their villages in the shape of a white man, 'carrying a bag on his shoulders'. He may be a real man or only a spirit; in any case he is believed to bring illness. 'Disease' knocks at the door of an Indian hut, and when some one goes to open it for him, the spirit will 'catch' him (ungüi hápin). One Indian having thus been caught, the relentless strange demon will look for more victims among the rest. Hence, when in one way or other the Indians have got the idea that 'Disease' is approaching their village--for instance when a party of white men are arriving--the [397] women start to cry loudly and lament just as they do when mourning for the dead. In this way, they believe, 'Disease' will be frightened away or anyhow induced to retrace his steps and leave the inhabitants in peace. This idea explains the strange welcome, consisting of ceremonial crying and lamentation, which white travellers sometimes receive when arriving at Indian villages. Again, when a contagious disease, for instance an epidemic of small-pox, breaks out in a place, the inhabitants generally see no other way of ridding themselves of the unwelcome guest than by leaving it and migrating to another part of the country. In such

cases they are in the habit of blocking up the path along which they go with sticks and branches of trees, 'in order that the disease spirit may not be able to follow in their footsteps.'"

4: Up de Graff--221 (1897) 1923 Jivaro
116, 164, 757

"All the men and women we meet are strong and healthy, for although once in the hands of the medicine man they have but a poor chance of recovery (he generally starves his patients to death), they have little need of his services, being absolutely free from diseases, except smallpox and one other of which the chief symptom is a cough, but which I was never able to identify."

12: Rivet--613-614 (no date) 1907 Jívaro
116, 621, 157, 164

In spite of their apparent isolation the Jívaro live socially; but up to the present time they have put up great resistance against grouping themselves in villages. It must be said that this repugnance can be explained not only by the desire for independence which is so well developed in them, but also by the fear of the diseases brought in by [614] the whites, especially smallpox which breaks out in fatal epidemics in Indian groups.

13: Rivet--251 (no date) 1908 Jívaro
116, 164, 753

Illnesses are rare, because of the robustness of the individuals and the healthy life that they lead, and, as the savages say, thanks to the daily washing of the stomach. Against smallpox, which so often burst out in deadly epidemics in Christians' settlements, the Indiańs know only one remedy, dispersion and abandonment of the sick. The Aguarunas, however, take care of their sick in little houses separated from the communal habitation.(1)

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1. Mesones Muro, op. cit., page 81.

24: Wright--237-238 (1938) 1942 Jivaro-1
116, 164

"The Jivaro Indians, known as Shuara among themselves, are popularly referred to as 'The Headhunters.' Those studied in the summer of 1938 were found dwelling in the jungles on both banks of the Upano River, about 75 miles south of Macas and east of Méndez, at the foot of the eastern slope of the Andes, Department of Oriente in Ecuador, South America.

For comparative study, two groups were selected, confined only to the males of varying ages from pre-adolescence to adulthood, selected at random.

Group number 1 consisted of 67 individuals, 56 adults and 11 pre-adolescents, who had had little to no contact with whites or with the world outside of their community. They subsisted on a diet consisting of bananas, both roasted and raw, herbs, roots, berries, nuts, yuca or manioc tuber, maize, fish, the meat of monkeys, wild pigs and birds. The mainstay of their diet is a manioc beer, prepared by the women, who masticate the manioc tuber, thoroughly incorporating it with saliva and then expectorating the solution into a container. After several days' fermentation, this beer is drunk in copious quantities by everyone including the small children. A persistent custom among most of the individuals [KS: in comparative study of teeth] is the chewing of the 'nashumbi' berry, identified botanically as Manettia coccinia, which produces a brownish lacquer-like coating over the teeth. It is not known if this inhibits tooth decay or not.

The examination of the teeth of these individuals [KS: in comparative study of teeth]

was attended with considerable difficulties since tribal customs prohibit the touching of the faces of children and women by strangers. Plaster casts of the teeth were made of the majority of those examined, but since dental instruments were not used, tabulation of tooth cavities was made by observation with the aid of a tongue depresser. The records made represent the types of tooth positions in the dental arches as a comparative, relative record rather than an absolute index. The results of this examination revealed 55 individuals or 82% of all with maxillary [238] center incisor teeth which were either rotated, overlapped, or otherwise misplaced in the dental arch. In some individuals there was also a misplacement of the mandibular central incisors. (Plates 1 and 2) In all adults of this group a complete permanent dentition was the rule, with no other misplacements of teeth than the affected central incisors having been noted. No explanation of the existence of this variation of the positions of the central incisors can be given other than that it is a persistent variable, which cannot be classified merely as a form of malocclusion.... In group 1, malocclusion, affecting the remaining dentition, was noted only in pre-adolescent boys and girls, although it was impossible to make plaster-cast records of most of those seen. This may offer some evidence for the contention that malocclusion of the teeth is associated with other systemic disfunctions. In an environment such as this one, where the rigors of existence are so severe and the securing of sustenance and

alleviative treatment for illness so uncertain, only those who are most fit to survive ever reach adulthood. This does not offer conclusive proof that most children with malocclud-ed teeth die before maturation, since it is possible for some tooth malpositions to cor-rect themselves in conjunction with the added growth spurt, which usually attends pub-escent and post-pubescent body alterations. However, the testimony of the fathers of families all coincided with the statement that children with irregular teeth rarely reached manhood, but died before that time.

Examination of the dentition of group 1 revealed a surprisingly low average of dental caries. 41 individuals or 61% had teeth entirely free from dental caries and of those re-maining, the greatest number of tooth cavities to be noted did not exceed five. Mandi-bular fourth molars were found in two individuals, but no other supernumerary or mis-sing teeth were noted. (Table 2.)"

24: Wright--238-240 (1938) 1942 Jivaro-1
116, 164, 177, 262

"Group No. 2 [KS: in comparative study of teeth] consisted of 80 males from pre-adolescent to middle adulthood, of which 34 were adults, and 46 pre-adolescent. This group lived in the mixed white and Indian settlement of Méndez, approximately three days journey from the region of Group No. 1. This latter group is of the same racial stock and family as those of Group No. 1, and originally lived in the same jungle environment, but are now under the protection of the missionaries and were living in and about the mission settlement. Their customs and food habits had been altered to meet the requirements of a quasi-civilized community. The usual diet of these individuals consisted of bananas as the only raw food, cooked meats, potatoes, rice and beans, bread, canned salmon, biscuits, coffee and carbonated beverages. Occasionally, cheap candy, cakes and sugar cane were available, the latter in ample quantities. Almost every individual suffered from [240] gastric disturbances. Because of local obstacles which could not be overcome, the making of plaster casts of their teeth and routine accurate dental examinations were virtually impossible, and cursory examinations for comparative study had to suffice. With the exception of three adult individuals, no one was free from dental caries. Approximately 25% had all their teeth affected with dental caries, and 35% from one to several teeth were missing. Of 34 adults, 16 had good occlusions, while 18 had fair occlusions, but with misplaced and rotated maxillary central incisors. Of the pre-adolescent

members of this group, 14 had good occlusions, and 32 were affected with malocclusions of varying degree; all of the latter had misplaced and rotated maxillary central incisors. Of a total of 80 individuals in Group 2, 50 or 82.5% were affected with maxillary central incisor misplacements. (Table 1.)"

TABLE 1--COMPARATIVE STUDY OF THE DENTAL OCCLUSION OF GROUPS 1 AND 2.

	Group 1. 67 Males		Group 2. 80 Males	
Class.	Adults 56	Pre-adolescent 11	Adults 34	Pre-adolescent 46
Good Occlusion	18	3	16	14
Rotated Max. 1st incisors. Bal. occl. fair-good.	47	5	18	32
Rotated Max. 1st incisors gen. mal-occlusion		3		

[Put above slip number 2, matching column rules.]

24: Wright--239
116, 164, 177, 262

(1938) 1942

Jivaro-2

4th mand. molars.	2				[Match columns with slip No. 1]
Rotated Max. 1st incisors.	Total 55 or 82%	of Group 1.	Total 50 or 82.5%	of Group 2.	

TABLE 2--COMPARATIVE STUDY OF TOOTH CAVITIES OF GROUPS 1 AND 2 (1).

Class.	Adults 56	Pre-adolescent 11	Adults 34	Pre-adolescent 46
Free from caries	32	9	3	
1 cavity	15	1		
2 cavities	1			
3 "	4		31	46
4 "	1			
5 "	3	1		

(comparative records)
25% of all had cavities in almost all teeth.
35% had missing teeth.

"1. [See following sheet for footnote]"

"1. [Footnote 1, p. 239] It was impossible to tabulate Group 2 in detail except to show results of a cursory examination for a comparative study."

24: Wright--240
116, 164, 177, 262

(1938) 1942

Jivaro

"In comparing the dental conditions of the two groups [KS: in comparative study of teeth] the factor of misplacements of the maxillary central incisors is a persistent variable which is constant for both groups. With 82% in Group 1, and 82.5% in Group 2, there is a variance of only .5% for affected teeth, a curious coincidence. There is another factor to be noted, namely that of the wide variance of dental caries between the two groups. The change in food habits is undoubtedly responsible for the increase in dental caries in Group 2, but this change in environment does not alter the inherited tendency to variation in occlusion common to both groups."

25: Vigna--36 [4] (no date) 1945 Jivaro
116, 158, 164

In general, among the Jíbaros, there are no insane or neurasthenics, nor are there persons afflicted with arthritis, rickets, or scrofula. However they are greatly disfigured by a licheniform affection of the epidermis with a tendency to darkish color. They suffer from tuberculosis. This is spread rapidly by means of the containers in which they indifferently serve themselves their favorite drink "Chicha."

M:Harner E-5 (1956-1957) 1962 SD9 Jivaro SD9

...to achieved without recourse to the beliefs regarding *nekas*, witchcraft, or warfare.

Three kinds of *wakani* are recognized. The first type to be described is the *arutam wakani*. This is an acquired soul and is believed by the Jívaro to be the most important kind. A man may possess up to two *arutam* souls at one time. The second type of soul is the *muisak*, or avenging soul. The third to be dealt with is the *nekás wakani*, the "true," "real," or "ordinary" soul.

THE ARUTAM SOUL*

Arutam wakani is perhaps best referred to as the "ancient spirit" soul. The term "*arutam*" alone refers to a particular kind of vision or apparition. "*Wakani*" alone simply means "soul" or "spirit." Thus, the *arutam wakani* is the particular kind of soul which produces the *arutam* or vision. An *arutam* appears only occasionally and, when it does, is only in existence for less than a minute. The *arutam soul*, on the other hand, exists eternally once it has been created. It is in the system of thought regarding the *arutam* soul that the Jívaro seek security from the ever-felt menace of death.

The Jívaro believe that the possessor of a single *arutam* soul cannot be killed by any form of physical violence, poison, nor by sorcery, although he is not immune to death from contagious diseases such as measles and smallpox.[9] In other words, a person who has even only one *arutam* soul in his possession is relieved from daily anxiety about being murdered. A Jívaro who is fortunate enough to possess two *arutam* souls cannot die of any cause whatever, including contagious disease.

A person is not born with an *arutam* soul. Such a soul must be acquired, and in certain traditional ways. The acquisition of this type of soul is considered to be so important to an adult male's survival that a boy's parents do not expect him to live past puberty without one. Women sometimes obtain *arutam* souls, but it is not considered so essential for them. One reason is that inter-tribal killing, the most common source of violent death, is primarily directed at adult males rather than at women and children.

A boy begins seeking an *arutam* soul at about the age of six years. Accompanied most commonly by his father, he makes a pilgrimage to the sacred waterfall of his neighborhood. This is always the highest waterfall within a two days' travel. It is believed to be the rendezvous of those souls which worship about an hour, scattering the spray of the long cascade. By night the pilgrims keep near the falls in a simple lean-to. Here they fast, drink tobacco water,[10] and await the appearance of an *arutam* in the vision quest. They may keep up this fasting for as long as five days. If unsuccessful, they return home to make an attempt again at a later date.

If the *arutam* seeker is fortunate, however, he will awaken at about midnight to find the stars gone from the sky, the earth trembling, and a great wind filling the room of the house amid thunder and lightning. To keep from being blown down, he grasps a tree trunk and awaits the *arutam*. Shortly the *arutam* appears from the depths of the forest, often in the form of a pair of

/334 cont./

628 now retreating attackers, and thus new members all too easily become involved in the endless chain of blood revenge.

The terrible custom demands ever new, ever more victims, all security must disappear, every individual constantly [342] lives in danger of being ambushed; there is a general and perma- [574] nent state of war. Hence the arrangement of the houses, one [576] door of which can be used for flight, while the battle rages at [231] the other; hence the customs mentioned at the beginning in connection with approaching a dwelling, for the protection of which, 628 in addition, a pack of half-wild dogs are kept. A quarrel be- 648 tween two families must lead to battles between whole tribes; larger groups of tribes become hostile to one another; war and battle become customary, a man's lifework. A longer period of quiet, of peace, must be unbearable for such a nation of warriors. Ambitious, bold leaders will easily find companions for joint war expeditions; the neighboring nations are attacked and plundered. Thus, these Indians are carrying on among themselves a war of annihilation which must gradually bring about [161] their own downfall. Severe depopulation is already noticeable [164] in the region of the Jívaros, and it is being accelerated by [177] epidemics, of the diseases introduced by the Europeans, which appear with great violence at times.

727 It may be that the Jívaros themselves do not place very much confidence in the truth of their own war reports, or perhaps there are other reasons for demanding positive proof of the executed blood revenge and courage, but this much is certain, only the one who can display the head of the enemy as a trophy is regarded as victor. Thus all the effort goes into beheading the enemy. This is easy in an ambush, but more difficult in a regular 726 battle. The warriors are armed with shield and lance; and lately 41 with large forest knives. The circular shield, carved out of a 714 single piece of soft and light wood, is about half as high as a man; the lance, made out of a thin, hard palm shaft (chonta) provided with a tip made out of bone or iron, is six to seven feet long or more. The troops advance close together, each man in a bent position protected behind his shield; the lance rests in the

34:Harner E-4.5 (1956-1969)1973 SD9 Jivaro SD9

highland province of Azuay in the 1930's, many more Jívaro families migrated eastward to escape harassment. Thus it seems evident that the population of the interior Jívaro has been substantially augmented by migration for at least a century.

The picture is less clear with regard to the demographic effects of disease upon the interior Jívaro. Epidemics of contagious disease, especially measles and whooping cough, appear to have had devastating effects in the twentieth century among these people. Informants claim that in some cases half of the populations of their neighborhoods were wiped out in a single epidemic. It is difficult to evaluate such statements, but they are not inconsistent with what we know of the effects of such diseases on other South American forest Indians under observation at times when they were struck by measles and smallpox. In addition, common colds and similar respiratory ailments easily reach epidemic proportions among the Jívaro, with complications of a fatal nature being common, especially among infants and the elderly. The fear of colds is so great that it can act as a barrier to acceptance of the anthropological fieldworker, who must, of course, take every precaution to be sure that he and his companions are not, in fact, bringing the disease.

Malaria is endemic, but is recognized by elderly informants as being an anciently introduced disease "brought by Jívaro coming back from Peru." The Jívaro believe that it is transmitted when sharing the bowl in which manioc beer is served. It would seem highly likely that malaria, an Old World disease, which possibly has been present among the Jívaro since the sixteenth century, has had substantial effects on their rate of mortality and thus upon their long-range population size and density. Again, however, the lack of

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

relevant written records makes it almost impossible to judge its actual demographic effects.

Informants report that a significant new disease in the interior is gonorrhea, which they say was brought to the Upano Valley Jívaro by Colombians during the rubber boom at the beginning of this century and has only recently crossed the Cutucú range. The Colombians were also said to have brought mumps. Interestingly, although smallpox epidemics are known in the Upano region, the interior Jívaro east of the Cordillera de Cutucú do not recall the disease ever having spread to them. Tuberculosis is said to have been completely unknown anywhere in the Jívaro country until the colonists from Azuay moved in, but is now common.

The demographic trends among the interior Jívaro thus are sketchy and conflicting. On the one hand, there has been a definite growth through in-migration from the Upano Valley in the face of the advancing white population; but on the other hand, a high incidence of mortality has apparently occurred, especially among the very young and the elderly, as a result of serious epidemics of introduced contagious disease. Another imponderable demographic factor is the shift that has occurred during the past half-century from large-scale headhunting wars with other tribes, in which men, women, and children were all killed, to an emphasis on individual assassination within the tribe directed primarily at adult males. Given the various conflicting trends and uncertainties involved, about all that seems clear is that there is no obvious overall trend of population growth or decline among the interior Jívaro during the first half of the twentieth century. The area occupied by them, however, does seem to have expanded.

In addition to the Río Upano and the Cutucú mountain

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

imagined. Paradoxically, the *arutam* soul concept also endorses assassination as a necessary form of behavior in the society.

The *arutam* soul belief system contains a number of significant supernatural traits organized together into one internally logical complex. In this system the central idea of immunity from death is combined with such anthropologically well-known concepts as: a vision quest; a guardian spirit; external and multiple souls; a variety of generalized ancestor worship; reincarnation; soul-loss; soul-capture; non-shamanistic spirit possession; and a concept of personally acquired supernatural power, *kakaram*, which resembles, but is not precisely identical to, the Oceanian *mana*.

The concept of the *musiak* furnishes the rationale for head-taking and shrinking, as well as explaining as supernatural murders those deaths which in many other cultures would be ascribed to accidental causes. One may observe that the Jivaro are so preoccupied with killing in physical life that it seems only consistent that their two most emphasized types of souls, the *musiak* and the *arutam* soul, are supernatural devices, respectively, for murdering and avoiding being murdered. Beyond this, it is clear that these internally coherent and complex bodies of belief are an important part of the Jivaro view of reality and, as such, affect their overt behavior.

Shamanism and Illness

The Jivaro believe that witchcraft is the cause of the vast majority of illnesses and non-violent deaths. Practically the only diseases not attributed to witchcraft are "white man's diseases" (*nayuri*), normally of an epidemic nature,

34:Harner E-4, 5 (1956-1969)1973 SD9 Jivaro SD9

such as whooping cough, measles, colds, and some mild diarrhoea. The normal waking life, as noted before, is simply "a lie," or illusion, while the true forces that determine daily events are supernatural and can only be seen and manipulated with the aid of hallucinogenic drugs. A reality view of this kind creates a demand for shamans, part-time specialists who can cross over into the "real" world at will to help others to deal with the forces that influence and even determine the events of the waking life.

Jivaro shamans (*uwišin*) are of two types: bewitchers and curers. Both kinds take a hallucinogenic drink, whose Jivaro name is *natema*, in order to enter the supernatural world. This brew, commonly called *yagé* or *yajé* in Colombia, *ayahuasca* (Inca: "vine of the dead") in Ecuador and Peru, and *caapi* in Brazil is prepared from segments of a species of the vine *Banisteriopsis*, a genus belonging to the Malpighiaceae. The Jivaro boil it with the leaves of a similar vine, *yaji*, which probably is also a species of *Banisteriopsis*, to produce the cooled *natema* tea that contains the powerful hallucinogenic alkaloids harmaline, harmine, *d*-tetrahydroharmine, and quite possibly N,N-dimethyltryptamine (DMT) (see Plate 11).[18] These compounds have chemical structures and effects similar, but not identical to, LSD, mescaline of the peyote cactus, and psilocybin of the psychotropic Mexican mushroom.

Shamans prefer to use *natema* rather than *maikua* (*Datura arborea*) for going into trances, because the potency of the latter is too great for the shaman to be able to function vocally in singing, sucking, and the accompanying social interaction. Also, since the shaman must go into trances with frequency, he does not like to use *Datura* for that purpose because the strength of the plant is such that its repeated use is believed to lead to insanity. As an illustration of this